

## **MULTIANNUAL MANAGEMENT AND RECOVERY PLAN FOR THE IBERIAN SARDINE (2018-2023)**

Sardine (*Sardina pilchardus*) is a resource of strategic interest for both Portugal and Spain. The sardine distributed in the Atlantic waters of the Iberian Peninsula, corresponding to the stock in ICES divisions 8.c and 9.a (Cantabrian Sea and Atlantic Iberian waters), has been managed together by both countries. Portugal and Spain are engaged in keeping fishing efforts at levels that allow for its maintenance and the recovery of the resource. In the past years, the stock evolution has been strongly conditioned by poor recruitment.

The governments of Portugal and Spain, present to the European Commission a six year plan for the recovery of the sardine stock, with the following parameters: targeting the progressive recovery of sardine biomass, reinforcing its responsible and sustainable management in the framework of the Common Fisheries Policy (CFP), taking into account the ecological-social and economic sustainability principles, on its impact on the marine ecosystems, fishing communities, transformation and commercialization fishing industries and also its societal value in culture, tourism, and gastronomy.

Since 2005, a pronounced breakdown in sardine recruitment is being verified, leading to a biomass reduction. As a response, a Management Plan (2012-2015) for sardine fishery was implemented. The Plan contained an exploitation rule which was validated by the International Council for the Exploration of the Sea (ICES, the international body which performs the scientific advice for the Northeast Atlantic fishing resources).

From 2006 to 2016 successive low sardine recruitments occurred with a consequent reduction of the biomass level that has reached its minimum between 2013 and 2015. However, in 2016 and 2017 the biomass recovered 31.6% compared to the value registered in 2015.

In 2017, ICES performed a benchmark of the sardine stock: the assessment was reviewed and biological reference points were adopted for the first time. Responding to a request by the European Commission, ICES has evaluated the exploitation rule contained on that plan. The rule was evaluated as non-precautionary because sardine biomass remained below the Blim despite some growing in the past two years. Consequently the ICES advice for 2018 was the closure of the fishery.

Considering the social and economic impacts of such a measure on the purse seiner sector. Portugal and Spain agreed to adopt a multiannual medium term management and recovery plan to enable the recovery of biomass and to achieve a sardine stock management under the Maximum Sustainable Yield (MSY).

The present multiannual plan, follows the framework foreseen in EU Legislation for fisheries multiannual management plans, following art 9º and art 10º of EU Regulation nº1380/2013 from the European Parliament and Council, and accounts for the management objectives and governance structure, already consolidated. In Portugal it comprises the Sardine follow-up Commission which comprises the Producers Organizations (OP's) associated and non-associated to ANOPCERCO, as well as representatives of fisherman, commercialization companies, transformation, industries and non-governmental organizations.

In this framework, the present plan reflects the specificities of the purse seine sardine fisheries in Portugal and Spain and includes conservation technical measures designed to avoid or reduce unwanted captures and minimizing the negative impacts of this fisheries in the ecosystem and other safeguarding measures

## 1. THE SPECIES AND THE FISHERY

The sardine (*Sardina pilchardus*) extends along the coastal zones of the Northeast-Atlantic, from the United Kingdom to Senegal and within the Mediterranean Sea, occurring more abundantly in zones of upwelling.

In the Iberian Peninsula, this small pelagic, forms schools occurring in depths between 10 and 100m, and remain generally confined to the continental shelf. The juveniles are distributed closer to shore in areas adjacent to estuaries and river mouths. It is a short lived species, with generally small size presenting growth and maturation rates which are quite fast. Individuals older than 8 years old are not common off the Atlantic Iberian coast.

The sardine is classified as an omnivorous, and feeds on phytoplankton, in particular diatoms and zooplankton, including their own eggs. It is an important prey for other carnivorous fish and marine mammals.

The available biological data indicates that the sardine spawns normally from the first year (75%). Spawning extends over a large period, between October and April, giving rise to a massive egg production. The recruitment season is equally long, occurring between September and January.

The survival rate of the egg and larvae stages is highly dependent on the environmental conditions verified on those stages. It is difficult to forecast the success of spawning or recruitment. Such favourable/unfavourable environmental conditions generally lead to large variations on sardine recruitment, much in the same way of other pelagic species.

The Portuguese Purse Seine fleet is composed of 192 vessels, with an average GT of 29.93 and length (LOA) of 15.03 m. 136 of those vessels are almost exclusively directed to sardine fisheries. Other common captured species are mackerel, anchovy and horse mackerel.

Table 1 shows the sardine sales (tonnage and economic values) since 2011 in Portugal. It should be noted that this kind of fisheries have big crews particularly in the north of Portugal, with average of over 20 crew members by vessel. Remaining mainland fleet, averages 12 crew members by vessel.

	Tonnage (tons)	Economic value (K€)
2011	53616	40796
2012	30945	40353
2013	27444	39332
2014	15651	31258
2015	13387	29522
2016	13698	27840

The more representative fishing harbours are located in Póvoa do Varzim, Matosinhos, Figueira da Foz, Peniche, Sesimbra, Setubal, Sines, Portimão and Olhão. The productive sector is organized in Producers Organization (PO) which represent the near totality of licensed purse seiners.

The purse seine fleet supplies the market with high quality fresh fish and also supplies the Portuguese industry of canned sardine. This industry has long lasting tradition in Portugal, being responsible by a significant share of the productive sector added value, and most of its production is directed to foreign markets.

Taken together, the sardine fisheries value chain accounts for a great number of jobs in Portugal. The fleet operates with numerous crews and there are a considerable number of workers in the transformation industries. Overall it is estimated that 1500 direct jobs are associated with the purse seine fleet, and at least a similar amount are accounted for in the transformation industries onshore.

The Spanish purse seine fleet consists of 344 vessels with an average tonnage of 69.94 Gt and an average length of 21.13 m. Of these, 174 purse seiners are in Galicia and 84 in the Gulf of Cadiz. 46% of the total catch of the later are sardines with a sales value that represents 40% of the total revenue. For the Galicia fleet the sardine represents 26% of the total catches and sales value of 32% of the total. Both fleets carry an average of 9 crew members on board each vessel. The dependence of the purse seine in this specie is, according to the kg landed of 19% and according with the economic value of the landings of 23%.

In Spain, in addition to the number of workers directly linked to fishing with Purse Seinners, estimated at 3,700, the role of the manufacturing industry is relevant, generating more than 12,000 direct jobs in the region of Galicia alone. For this industry, one must add the aggregate value of its export potential (between 2012-2014, 6000 tons were exported).

## 2. Objective and scope of the Multiannual Plan for the recovery and management of the Iberian sardine.

The present document outlines a multiannual plan for the management and recovery of sardine fishery approved by Portugal and Spain for purse seiners for the Iberian and Cantabrian sea waters corresponding to ICES divisions 8.c and 9.a. Its main goal is the sustainable management of the sardine fishery achieving a compromise in their economic, social and environmental strands.

This multiannual management and recovery plan for the sardine fishery ensures the sustainability of the resource, minimizes the impacts of fishing activity on the ecosystem, tries to ensure the economic viability and social conditions in the industry and sets governance structures that ensure appropriate levels of cooperation.

## 3. Exploitation Rules, Goals and Safeguards

ICES fixed in 2017 for the first time the biological reference points for the resource exploitation:  $B_{lim}=337$  thousand tons,  $B_{MSY}=B_{trigger}=B_{pa}=446$  thousand tons and  $F_{MSY}=0.12$  year.

The new biological limits defined by ICES for this stock are the following ones:

- Blim 337.448 tm
- Flim: 0,25
- Fmsy/Fp,05: 0,12 (precautionary criterion for FMSY. Mortality that will lead to Blim with a 95% probability)

According to the ICES advice for this specie,

- The **biomass** in 2017 was 146.831 t, which means a 43% of Blim.
- **Mortality** for ages 2-5 for 2016 was  $F= 0.204$ , a 50% lower than the mortality before Spain and Portugal had apply the old plan since 2014, but still over the Fmsy value of 0,12.

Due to the new information about the state of the stock and de biological limits, both countries have decided to apply an interim management plan until 2023 to recover the stock while they maintain the employment linked to the exploitation of the Iberian sardine.

In short-lived species such as sardine, existing biomass in each moment depends mainly of favourable environmental conditions that ensure the juveniles survival. The reasons for the successive failures of recruitment remain unknown, and may be related to environmental factors.

In any case, such framework requires strengthening of fisheries conservation measures within a precautionary approach, in particular for the protection of juveniles, as well as the control of catches, to avoid further biomass reduction and promote stock recovery.

The ICES advice shows that the actions taken for the restriction of fishing effort, consisting in temporary stops of the fleet and other restrictions, have contributed to reverse the recent years biomass downward trend. However, according to the last evaluation by ICES, taking into account the approved reference points, considering current recruiting levels, even with a closure of fisheries, the biomass does not recover to Blim level until 2020 as required by the CFP.

The present plan has a goal to ensure up to 2023 an annual minimum recovery of biomass at a rate equal to or higher than 10% an never below 5%, while keeping a fishing mortality between 0.09 and 0.1, in any case well below FMSY (0.12) until Blim is reached. The plan considers a annual closure of the fishery between the 1<sup>st</sup> of January and the 30<sup>th</sup> of April in both countries. It further considers 14 K tons to be the minimum catch necessary to assure the sardine fishery viability, although with a seasonal pattern, therefore the minimum captures susceptible to be fixed.

The target of the interim management plan for this stock is to increase the biomass at least to 80% of Blim before the end of 2023, so an increase of 78% from the 146.000 t in 2017 in a period of 6 years (an increase of 9-13% annually).

The harvest control rule (HCR) that will be apply will be the following one:

- Mortality (F) will be set every year “at” or “below” Fmsy 0.12, starting by a mortality of F2018=0, 10 and 14.600 tm.
- If the biomass is below 269.958 t (80% of Blim), F (mortality) will be set at 0.1.
- If the biomass is over 269.958 tm, F (mortality) will be set at Fmsy 0.12
- On that basis, mortality will be modulated as to produce at least a 10% of increase in the biomass the following year and never less than 5%.

The following table presents some indicators of the evaluation of a harvest control rule which incorporates the objectives and conditions of the current Plan. For comparison, the results of the evaluation of the ICES MSY advice rule are also presented. The technical details of the analyses are reported in a Working Document from Instituto Português do Mar e da Atmosfera (IPMA).

**Table 2 - Simulation on Biomass evolution for two management scenarios**

	Recovery Plan				ICES: Catch = 0 until Blim			
Year	2018	2019	2022	2028	2018	2019	2022	2028
Prob (B>Blim)	0,4	0.9	15,3	58,2	0,4	1,8	24,5	83,4
Prob(B> 80%Blim)	2,8	5,9	34,1	75,9	2.2	7.9	47.8	93.5
Average fishing mortality	0,09	0,08	0,08	0,09	0,001	0,001	0,011	0,07
Average Biomass (mil t)	165	180	243	365	163	189	281	437
Average Catch (mil t)	15	16	21	39	0	0	5	31
% Annual increase in Biomass 2018-2022	9-13%				13-16%			

The sardine is not a specie submitted to the UE TAC and quota regime. In some years, the catches of the two Member States have surpassed the agreed limits, with the sectors of both countries defending different interpretations about the total limits of catches. Aiming to ensure the compliance of the annual catch limits to be established in the scope of the present plan, both Member States agree to a reference indicative ratio of catches of 2/3 (66,5%) and 1/3 (33,5%) for Portugal and Spain respectively.

With this approach it is proposed that the fishing mortality rate is fixed at 0.10 to 2018, with an estimated recovery for biomass of a10%.

In upcoming years, each June, when the annual evaluation by ICES establishes the estimate of the previous year's recruitment, based on best updated scientific data, a request will be addressed to ICES to revise the advice for the current year, for various scenarios and fishing possibilities adjusted for both countries.

As a safeguard measure, each two year, should the biomass increase less than 10%, then measures foreseen in the plan will be re-assessed.

An eventual revision of the reference points by ICES will imply a revision of the exploitation rule here presented.

#### **4 . MEASURES TO BE IMPLEMENTED BY SPAIN AND PORTUGAL DURING THE MANAGEMENT AND RECOVERY PLAN**

Spain and Portugal have agreed in the following common measures to be apply at the same time of this HCR.

1. Reduction of the directed fishery to NO MORE THAN 6 MONTHS (May to October):This measure will reduce the time during the year that the fleet can go for sardine and will close the months where the reproduction takes place (namely March-April in 8C or December-April in 9)
2. Clear sharing of the TAC between Spain (33, 5%) and Portugal (66, 5%) for the first time and for the duration of the plan (That will avoid overshooting the TAC).
3. Reevaluation of the situation of the Iberian sardine every year in the COLEP to see the level of improvement and to take prompt action to correct any deviation from the Plan.
4. Collaboration with the South Western Waters Advisory Council on the implementation of the measures and to circulate the info about the results of the new Plan.

During the plan, measures will be upgraded and tuned and further technical measures may be fixed, for each country. A common period of prohibition of directed fishing and stopping of the fleet will be set and will be adapted to the objectives for the management of fishing effort (fishing mortality rate). This articulation will ensure equity in the management approach of both countries therefore ensuring the coherence of preservation policies.

#### **MEASURES TO BE IMPLEMENTED BY SPAIN**

The measures that Spain will apply to the fleet will be as follows:

1. Closure of the directed fishery for sardine: from 1st November until 30th of April. This will help to protect the stock during the reproduction period.
2. Only BYCATCH captures will be let in other pelagic fisheries to avoid the discard of sardine caught as a by-catch (Anchovy or horse mackerel fisheries). These catches will count against the total quota authorized by each fleet (Galicia and Gulf of Cadiz).This by-catch captures will be strongly controlled to avoid direct fishery. The fleet can only disembark a maximum of 15% of sardine respect the total catch of other pelagic species during the rest of the year (November through April).
3. Real time closure of areas for protecting juveniles.

Real time closures (RTCs) is a relatively recent development in fisheries and have proved to be a dynamic and responsive tool that fisheries managers, in cooperation with the industry in design and implementation of schemes, can use to protect spatially and temporally variable resources.

In the last years, there have been some examples within EU, as in Scotland to protect areas where high cod catch, or in France to protect fisheries of cod, haddock, whiting, and saithe in the North Sea. Beyond the EU, Iceland, for instance, has implemented temporary (real time) closures to protect juveniles and help to reduce discards, prohibiting fishing for at least two weeks when the catch of juveniles observed by inspectors exceeds a certain percentage.

According to those experiences we'll initiate a pilot project of real time closures for purse seiners' fleet in areas when more than 30% of the total catch of the fleet fishing are juveniles (Age 0). To get it, Spain is preparing a Regulation to introduce a measure to close in real time the areas where the juveniles concentrate.

As soon as the vessels finds an area with excess of juveniles, there will be a closure of that area during at least fifteen days. We will ask the scientific Institute how big should be that area.

This measure will be controlled through samplings in ports fixing a percentage of days of inspections directed to the purse seiners' fleet while the fishery of sardine is open. Depending on the development of the fishery every year further percentage of inspections would be establishes based on a risk assessment which will take into account quota availability and historicity of infractions.

Additional to it, a specific observer coverage program in vessels will start covering up to 200 new fishing trips per year of the purse seiners vessels of Galicia and Gulf of Cádiz.

The current effort in fishing ports markets will be keep.

This specific compilation will be include in addition in the National Program of Basic Data for the Fisheries Sector.

4. Limit the fleet that can participate in the sardine fishery. The number of vessels will be freeze and no new vessels will be authorized to enter the fishery. Only purse seiners and xeito vessels that have fished in any of the last three years will be allow retaining sardine.
5. Individual and transferable quota. Spain is changing the regulation in the Gulf of Cadiz to divide the quota that corresponds to that area between the 84 seiners, which will allow the transferable quotas to concentrate it in fewer vessels to reduce further the effort. To establish the individual quota of sardine in the Gulf of Cadiz fleet will improve the selectivity and the use of the quota.
6. Strengthen control measures. Limited amount of landings per day and vessel. To better control the use of the quota and to improve valorization of the catches, Spain will limit, in accordance with the fleet, the quantity of sardine that can be landed per day and vessel. From a minimum of 1.000 kilos per week in the months where the values is less to a maximum of 6.000 kilos per week in the months with higher demand and price. This will

be apply in case there is no sharing of the quota between vessels. Those limits will be included in a Resolution by the General Secretary for Fisheries.

7. Scientific monitoring: Increase the scientific coverage on board the purse seine fleet to increase the knowledge of the biology and distribution of the sardine and to detect the high concentrations of juveniles to close those areas.

Surveillance and monitoring the effects on real time of the measures applied and work closely with the scientist to regularly evaluate the achievements of the plan in relation to biomass and fishing mortality reference points.

### **MEASURES TO BE IMPLEMENTED BY PORTUGAL**

Additionally, Portugal will implement the following measures to its fleet. These measures are already in place or to be implemented in the short term (until April) are:

1. Limit the fleet that can participate in the sardine fishery. The only fishery that target sardine is purse-seine. Trawl has a by-catch of 10% and a limited number of small vessels catch sardine in summer like beach seiners and driftnets. In both cases the quantities captured doesn't justify special measures (2% for other gears besides purse-seine). Only actual fishing fleet licensed to purse seine can direct its fishery for sardine and no raise in capacity or power will be allowed. Additionally no raise in the size of the net allowed (that is linked to the size of the vessel).
2. Complete interdiction of sardine landings till 30 th April. This measure had been implemented to avoid different treatment between fleets and to assure that no one direct the fishery for sardine. Between 1th and 31 th may catches are going to be highly restricted (in 2017 landings were 2 thousand tons in May) also to allow juveniles to raise more.
3. Reduction of the quantities allowed to be landed per day and trip including T4 category size (now 500 kg/day/vessel). PO can also reduce these limits for landings of all vessels in their representative ports in order to control catches, regulate the offer and promote a better valorization of catches.
4. Limits in the area where purse-seine fishing operation can take place to avoid juveniles catches:  $\frac{1}{4}$  mile and 20 m depth between  $\frac{1}{4}$  mile and 1 mile from the coast.
5. Real time closure of areas for protecting juveniles. This imply in the aim of National Program of Basic Data for the Fisheries Sector and the Sardinha2020 project to establish an observer plan with high coverage (it is foreseen up to a maximum of 400 fishing trips per year of the purse seine fishery), and the monitoring of the fishing activity in the different grounds by VMS (for vessels with ate least 12 m) and other systems for the small fleet (till 12 m). The observers information will be cross-check with data collected by IPMA, sampling in ports and sales in auction.
6. Improve the control of the areas where vessels operate by the VMS and other systems, as described above and reinforcement of research through the program SARDINHA2020 or other relevant projects and observers on board of the vessels. Improve of the cooperation between the producers and the researchers with the participation of the fishermen and



purse-seiners in the acoustic surveys, as already experimented with success in JUVESAR2017 survey.

## 5. ECOLOGICAL IMPACTS OF THE FISHERY AND LANDING OBLIGATIONS

The impact of purse seine fishing on habitats is limited given that it mainly operates in the water column. However, the remaining ecosystem impacts are not yet well known and the effects of depletion of the sardine on the other components of the pelagic communities will be more studied in-depth.

The code of conduct and mitigation measures to avoid by-catches and mortality of marine mammals and seabirds proposed by national and European Projects (e.g. LIFE+ MARPRO in Portugal, xxx in Spain) should be followed by the purse seine fleet.

It is up to the masters of the vessels, on one hand, and producer's organisations, on the other to ensure a set of good practices resulting in a better use of all catches. The ship owners and masters, above all, to avoid fishing grounds in which the sardine presents sizes below or only slightly greater than the legal minimum size, and avoid discards and minimize slipping. This practices are foreseen in the framework of the European regulations, in discards plan for small pelagic fisheries, approved by EC Regulation nº 1394/2014.

## 6. FISH VALUATION

The OPs, with the collaboration of other entities involved in the fishery, the DOCAPECA, Portos and Lotas S.A. and NGOs will define and implement actions for the dissemination, promotion and valuation of the remaining species captured by purse seiners, including chub mackerel and horse mackerel, thus encouraging diversification of the activity.

## 7. RESEARCH AND MONITORING PROGRAMS

The Portuguese sardine fisheries has a long history of monitoring and control, with time series dating back to 1978. Monitoring programs are needed to evaluate the fulfilment of the goals and strategies laid down in this plan. IPMA, as part of the European programme of data collection, proposed a set of actions, including observers on board, sampling of landings and research campaigns. To further increase the reliability of the assessment it is proposed to perform the intersection of data from various sources, including the commercial fishery data. The biological sampling programme is concerted between Portugal and Spain, ensuring a data collection protocol and its analysis standardized for the whole Iberian stock.

the level of research in Portugal, the IPMA has been conducting two acoustic campaigns per year (one in spring and one in autumn) focused on stock assessment and gather the best information for decision support. Those campaigns will remain regular in spring and autumn, in up-coming years. Furthermore a third campaign can be performed, like in the current year, for situational knowledge of the sardine stock in relevant areas.

Finally with a tri-annual periodicity, the DEPM (Daily Egg production method) campaign is also held by IPMA. These surveys are coordinated with parallel Spanish surveys within the ICES Working Group on acoustic and egg surveys (WGACEGG).

With regard to Portugal, lines of research directed to the sardine as a resource, and to the role of environmental changes will be reinforced by a new project "Sardinha2020: ecosystem approach to fisheries management of the sardine", led by IPMA with the collaboration of several Universities. This project has as main objective the establishment of a management plan for the purse seine fisheries, integrating, within this scope, various specific objectives for a better knowledge of the species and the fisheries sector, such as:

- a) Identify the most important environmental variables for the variability of the biology, distribution, abundance and recruitment of coastal pelagic fish (sardine, horse mackerel, mackerel and anchovies) and develop models that make it possible to study and predict this influence;
- b) Determine mortality rates, growth and reproduction of the sardine on the basis of the variation in oceanographic variables, food availability, trophic interaction and the influence of parasites and pollutants, which will be used to parameterize different predictive models;
- c) Determine the distribution, identity and connectivity of populations in an ecosystem and multi-specific perspective and develop ecosystem models to assess the impact of inter-specific relations and fisheries for joint dynamics of pelagic fish stock.
- d) Integrate the social and economic components in stock assessment models and advice for fisheries management.

One of the expected outcomes is the establishment of an integrated management plan for the purse seine fleet that will include in the medium term the sardine management.

In Portugal, where the need to strengthen the link between science and the productive sector was diagnosed, measures to overlap this gap will include the participation of professionals and NGOs in the surveys led by IPMA, and conversely a program of scientific observers on board purse seine vessels to document and characterize fishing activity. Such measures will involve the scientific bodies, the productive sector and the NGO's.

In what concerns Spain, research campaigns will continue to be performed and research will expand to genetic studies to allow for a more precise characterization of the sardine stock.

Both countries will reinforce the scientific surveys: by Portugal PELAGO, JUVESAR, PT-DEPM-PIL, and by Spain SAREVA, PELACUS, ECOCADIZ, improving the operational coordination, survey timelines, and sharing of data and results.

They will also, strat new innovative scientific studies that allow an increase in conservation reference minimum size in order to improve the capacity of increasing in the recruitment. We can highlight the next that are already in progress:

Connectivity study among sardine population in southern areas of the Iberian Peninsula, which began in November 2017 with a sea survey. This study, being held by Spain, is currently being completed with genetic analyzes.

Portugal started November 2017 the SARDINHA 2020 program. A comprehensive interdisciplinary program addressing an ecosystem approach to the sardine fisheries management. The program comprises two main projects: sardine biology (Life cycle and habitat)

and stock management (Population dynamics and fisheries). These studies will allow to improve models and to define an integrative management plan of the purse-seiner fleet.

Additionally, Portuguese and Spanish researchers will increase contacts and cooperate to evaluate survey results, provide outcomes from studies being held in both countries, and share experiences on the application of the management plan measures including real time closures, onboard observers, among others, in order to contribute to its continuous assessment and improvement.

## **8. SURVEILLANCE AND CONTROL**

Under the community control regulation, landing control is mandatory as the first marketing takes place in auction facilities regardless of commercialization mode.

In the case of Portugal, vessels with a length greater than 15 m (which are responsible for over 90% of the total catch of sardine), are obliged to catches registration in a fishing logbook. Those vessels also are obliged to use satellite vessels monitoring systems (VMS).

Complementarily DOCAPESCA, Portos e Lotas, S.A. as the entity responsible for the first sale, ensures all the procedures for weigh catches at the point of landing and to record landings by specie/vessel, making them available to DGRM in a daily basis, with no more than one day delay.

In Portugal, to improve the effectiveness of control, is forbidden to transfer sardine from the landing port to other port, unless first sale takes place. It is considered unnecessary to implement a system of prior notification or designated ports as landings concentrate in a reduced number of ports.

However it is recognized that knowledge of the exact location of catches still requires improvement. To tackle this insufficiency, each country will implement a real time tracking system for vessels up to 15m in length, so far not subject to such a system. Following recommendations performed by the European Commission and the European Court of Auditors, vessels over 12m in length will also have electronic fishing logbook.

For the Spanish fleet, in addition to establishing quota controls per boat and day, tracking of consumption to avoid exceeding those quotas will be more accurate. With regard to the fleet in the Gulf of Cadiz individual quotas will be distributed to each vessel in order to facilitate a better control of quotas for each vessel and port.

## **9. EVALUATION OF THE MULTIANNUAL PLAN FOR THE MANAGEMENT AND RECOVERY OF THE SARDINE**

Each year, after the publication of the annual advice of ICES and by the end of 2020, both countries will assess the impact of the measures adopted and the evolution of the resource. Dependent on results, measures now adopted, might be revised.

## **10. COOPERATION**

Portugal and Spain will maintain regular contacts and will ensure the exchange of relevant information to ensure a proper and effective regulation of the fishery as to accomplish the management objectives foreseen in the current plan.

In Andalucía, Spain, a working group will be created to monitor the campaign in the Gulf of Cadiz. In Galiza, work with the Autonomous Community will be strengthened to improve cooperation between productive sector and the Administration.

In Portugal the Sardine Commission will keep its activities. When necessary the “CCSul” will be involved in any discussions for common technical measures to be put into force by both countries

## 11. CONCLUSION AND PROPOSAL TO THE COMMISSION

- In order to start with the implementation of this management plan, **Spain and Portugal will set a total catch of 14.600 tm in 2018, 50% to be applied from 1st of May until 31st of July.**
- **The remaining 7.300 t will be allocated for the rest of the fishing period in case biomass has increased at least a 10% since the evaluation of 2017.**
- Meanwhile we request the Commission to **ask ICES** to evaluate the plan **and the sustainability of the Harvest Control Rule (HCR)** in promoting the recovery of the stock in June, with the new data from Portuguese and Spanish surveys.